THE VETERINARY RECORD

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The Insufficiency of English.

The recently issued report of the Royal Commission on Tuberculosis contains one item of interest which has not attracted the attention it deserves. The Commission found that the vagaries of the bacillus during culture exhausted the resources of the English language. Some bacilli grew readily in many media, some with difficulty in any. It was felt that this characteristic must be emphasised, but the national tongue afforded no satisfactory terms for doing so adequately. Fortunately the Commission included not only scientific but classical scholars, and so the English language became enriched by the invention of the Greek derivatives—*Dysgonic* and *Eugonic*.

In the words of the report—"We have found it desirable to adopt some terms, to designate briefly the readiness or the difficulty with which a bacillus grows on a given medium; and we have adopted the words *Dysgonic* and *Eugonic* to denote respectively that the bacillus grows with difficulty or with readiness on a medium or on several media."

After this the report makes quite a free use of the new words, and affords a mild illustration of the value of Greek scholarship in assisting the poverty-stricken English in expressing complex and subtle ideas.

The following quotation exhibits the value of the new words in supplying brevity and lucidity to a description:

"But the demarkation between these two classes is not a sharp or broad one The members of the former class are not equally dysgonic nor are those of the latter equally eugonic. In each of them there is a wide range of growth, so wide in each class that the least dysgonic of the former differs slightly if at all from the least eugonic of the latter class."

It has been claimed that the English language is supremely full and expressive, and yet a Royal Commission is unable to report that some bacilli grow with difficulty whilst others grow with ease without introducing such terms as *dysgonic* and *eugonic*. Is there not too much pedantry in the nomenclature of science?

The Suppression of Quackery.

Seven members of the Southern Counties' Veterinary Society recently signed a requisition to their President to convene a special meeting. Seven members and no more—about one tenth of the total numerical strength of the Society—assembled round the President on the appointed day. Perhaps this was merely a coincidence, but the recurrence of the number seven is certainly odd; and the geographical distribution of those who composed the gathering is also worth noting. Two rather contradictory decisions were arrived at as the result of the afternoon's deliberations. Candidates for the Council are, as was previously arranged, to be invited to attend the Society's next meeting and express their views, but it is understood that no vote of confidence in any one will be permitted. On the other hand it has been decided that the Society shall nominate a candidate of its own with one particular object, viz., "the suppression of quackery and all that sort of thing."

We cull this quotation as a definition of the policy of the Society.

The action appears to have arisen from the combined effects of good intentions, inexperience, and imperfect comprehension of the issues involved.

Recognising the first named of these factors, we prefer to dwell as little as possible upon the too manifest evidence of the others. The utterances of some of the seven members were delightfully ingenuous and certainly invite comment. Really good advice was lately offered to another meeting of the same Society, and was absolutely disregarded, so we do not venture further criticism.

Still, as the question is to be submitted to the judgment of the electors, it is necessary to briefly indicate one or two points. In the first place, the warfare against quackery is by no means the only, and is far from being the most important, duty of our Council. The Brighton programme takes no heed of any other. In addition it must be remembered that the total abolition of quackery is legally impossible, and that rash and ill-judged attempts to restrict the practice may only have the effect of facilitating it. Some of the speakers at the Brighton meeting seem to be under the impression that "the suppression of quackery" depends solely upon the will of our Council. A more erroneous idea can hardly be conceived. We believe that the members of Council are doing, and will continue to do, what they can in this direction, but their powers do not, as some imagine, depend upon "the benefits of our Charter," but upon an Act of Parliament, which has considerable limitations. Our Councilmen know something of those limitations from experience, and deserve credit – not blame—for their caution in refusing to undertake doubtful prosecutions. They know that an unsuccessful one instructs our opponents how best to evade our Act—a very obvious truth, which some of their critics unfortunately fail to grasp.

Barnes' Bag.

We are requested to ask if any of our readers have any recollection of the use of Barnes' Bag in bovine obstetrics. There is a legend of a case, years ago, in which a cow was delivered of a calf some months after the normal time of gestation. The passages were dilated by this bag.

"Careful observation makes a skilful practitioner but his skill dies with him. By recording his observations he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of Pathological Science."

SHEEP SCAB + ENZOOTIC OPHTHALMIA?

Eighteen sheep had been separated from a flock of 80 or 90 and placed in a field some distance away from the rest. The appearance of these sheep was very distressing, one of them had died the previous night, blind and in an emaciated condition, the remainder being in little better state, some not able to stand, and about half of them, *i.e.* seven or eight, totally blind from opacity of the cornea, with an occasional ulcer on some of them. The membranes of the eyes were inflamed, and in some cases there was a purulent discharge from them—the whole of their faces, heads, bodies and legs were covered with scab—the heads and faces presenting a striking appearance, the whiteness of the skin where the scab had been rubbed off looking white as against the rest of the face covered with dark brown scab. The blind sheep were moving about in a most deplorable condition, and on examining their bodies the least pull would remove the wool, bringing with it here and there, especially over the back, loins, and sides, large pockets of very thick caseating pus, which was of such consistency that it did not lose its shape on removal. I have noticed similar conditions to this in previous outbreaks of scab where the dipping had been applied in too strong solution. These sheep had been dipped in a *scheduled dip (carbolic) in double strength* about fourteen days previously.

A post-mortem was made on the sheep that had died, the only internal pathogenic condition revealed was consolidation of one lung. Another of the sheep which could not stand and had opacity of both corneas was killed, and on post-mortem examination showed no internal organic lesions. A few of the rest of the flock of 80 or 90 presented similar conditions of skin and eyes, only to a slightly less extent. I discovered numbers of living psoropts upon them, as also on other members of the flock which had not been dipped at all.

On examining the scab removed from the face, head, body, and legs of the worst cases the psoropt was in each case recovered.

I at first considered the lesions of the eyes were caused by the constant irritation and rubbing of the heads against hedges etc., but if this had been the cause I should have thought that there ought to have been more evidence of injury and wounds, which were absent, on the cornea. Then I thought the conditions were caused as were the skin lesions, other than the scab, by the excessive dipping, but this theory was disposed of by the fact that the sheep's eyes were affected before they were dipped, and one which was totally blind, had died and was buried before any were dipped at all. These two supposed causes being disposed of, there remained a third to explain the eye lesions, that it must be a specific contagious disease in itself, and entirely independent of the scab and dipping. Professor Law describes a similar disease in his Veterinary Medicine as "Infectious conjunctivitis in herbivora" or "Enzootic ophthalmia" quoted in *The Veterinary Record*, March 3rd, 1906.

The serious aspect of the case was that although the sheep had been dipped with a scheduled dip used in double strength fourteen days previous to my seeing them, yet living acari were discovered and easily visible to the naked eye, and this, although the dip was of sufficient strength to cause the poisonous lesions I have described. This bears out practically the evidence of Mr. Theobald in the Departmental Committee's Report on Dipping, who describing the experiments on the psoropt during ecdysis, says that you may apply pure carbolic acid to it and it will emerge alive and well in the next stage.

The sheep are supposed to have been dipped according to the regulations in force previous to their removal to the farm last Autumn, and all the sheep on the farm were dipped on Nov. 12th, 1906, with a carbolic dip.

The deductions I draw from this and other cases are:—

1. That where sheep are affected with scab a single dipping with a scheduled dip is not sufficient.
2. The necessity of a second dipping of all sheep with a scheduled dip ten to fourteen days after the first dipping, if the disease is to be eradicated.
3. If the second dipping is to be obviated then more efficient inspection of all sheep before the first dipping takes place must be insisted upon.

FRANK W. GARNETT.

ULCERATION OF THE LARYNX.

A chestnut cart gelding, about 12-13 years old, was in regular work. One morning between five and six, after clearing up his morning feed, he was harnessed and driven out of the yard, which involved the ascent of a slight hill. Quite suddenly he began to roar badly, stopped, staggered, and fell. He was got up and taken back into the stable, where he was seized by a very violent and distressing fit of coughing of about ten minutes duration.

I saw him about 7.30, when all these acute symptoms had passed off. The horse was feeding comfortably, and though the pulse, respirations, and temperature were all slightly elevated, and the mucous membranes a little injected, I could see no symptoms which appeared at all serious. The history, however, was undoubtedly grave, and I diagnosed temporary spasm of the larynx.

Treatment.—Expectant. The horse was fed on soft green grass, received salines in his drinking water, and was watched night and day. I saw him twice again that day, and twice the next, coming on each occasion prepared to perform tracheotomy; but as I always found him feeding well and perfectly comfortable, I refrained from putting in a tube. The attendants, however, reported several

very severe attacks of coughing, similar to that above mentioned, as occurring in my absence. On my last visit, about 4 p.m. the day after the first seizure, the horse-keeper still complained of these occasional severe coughing fits, and much wished to apply mustard to the throat. Unfortunately, perhaps, I consented to a slight application, and left for home. Two hours afterwards I was informed that the horse was dead.

The history given to me was that as soon as the irritant effects of the mustard became manifest, he suddenly went down, and died after a short struggle, apparently from suffocation.

Post-mortem.—All organs were normal with the exception of the larynx, the condition of which was peculiar. Each vocal chord presented about the centre of its free edge, a small, circular, and apparently recent ulcer, about the size of a threepenny piece, and just penetrating through the mucous membrane. The two ulcers were in exact apposition; and the mucous membrane of both vocal chords was slightly hyperæmic. This condition fully accounted for the reported symptoms and sudden death, but its cause was quite obscure. The occurrence of ulceration in such a region suggested the possibility of glanders to my mind; and I therefore incised the lungs and carefully searched for glanderous lesions, but failed to find any.

Remarks.—The case is an unusual one, but I cannot congratulate myself upon my treatment of it, and therefore do not append my name. The performance of tracheotomy would have prevented the sudden death, whatever the final result of the case might have been—but as I never *saw* any symptoms to indicate the operation, I scarcely regard myself as culpable for not performing it on the strength of reports which might have been exaggerated. I ought, however, to have taken the horse out of the stable, and tested his wind in the yard; and I certainly blame myself for not doing this. Again, it is possible that, had I applied warm fomentations to the larynx instead of a sinapism, the result might have been more favourable.

V. S.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

The ordinary monthly meeting was held on Feb. 7th at the Royal College of Veterinary Surgeons, 10 Red Lion Square. Major E. R. C. Butler, President, in the chair. There were present:—Messrs. E. Lionel Stroud, A. L. Butters, F. G. Samson, Sydney H. Slocock, Ainsworth Wilson, A. E. Bayley, Nicholson Almond, Percy S. Howard, W. Roger Clark, G. H. Livesey, L. Savournin, C. H Harrison, G. W. Bloxsome, P. W. D. Smith, E. A. Batt, A. S. Leese, Arthur N. Foster, William Hunting, Herbert King, Guy Sutton, A. A. Johnson, T. M. C. Hunt, R. F. Wall, Capt. J. J Griffith, F. W. Wragg, R. A. Philp, Col. F. Smith, Major E. Taylor, W. Perryman, Major A. C. Newsom, E. M. Perry, Prof. J. Macqueen, R. Porch, W. L. Harrison, Hugh A. MacCormack, Hon. Sec.; and as visitors: Capt. C. H. H. Jolliffe, T. B. Goodall, W. N. Rowston, Arthur L. Wilson, R. Paine, and F. W. Garnett.

On the proposition of the President, the minutes of the previous meeting were taken as read and confirmed.

Letter and telegrams regretting inability to be attend were received from Messrs. W. Reekie and J. C. Coleman, and Lieut.-Col. R. Moore.

Correspondence.

A circular letter was read from the Royal Institute of Public Health inviting the Society to send delegates to the next Congress to be held at Douglas, Isle of Man, at the end of June; and on the proposition of the President the question of appointing such delegates was postponed until the April meeting.

Morbid Specimens.

Mr. G. W. Bloxsome exhibited half of a fore foot of a cart horse containing a fractured pedal bone and what appeared to be a keratoma. The horse had been constantly working in a contractor's cart for about ten months, and had formerly been the property of a wharfinger in London. It had been fired. One day it was shod and on the next day frost nails were put in and it was then noticed it was going lame. When he saw it there was not very much heat in the foot, but the leg was filled from the fetlock upward. The sole of the foot had been pared out and pus was coming away. He suspected that the leg had been also unnerved, but owing to the hair he could not see the scars. The horse died of septicæmia, and on making a post-mortem he found the condition shown, and also evidence of the horse having been at some period unnerved.

Mr. Slocock exhibited the bones of the foreleg of a blood mare that had received a kick while at grass. The condition showed a compound comminuted fracture of the elbow joint. Being an in-foal mare it was hoped at first that she might be saved and therefore she was kept for three weeks, and there were signs that nature had attempted to repair the injury. Out of the case litigation arose and the trial had come on that day at the Law Courts, the owner claiming damage on account of the pony inflicting the kick having shoes on. The case, however, was settled, so that the point of law was not argued.

Replying to Mr. Savournin, Mr. Slocock said the case was stopped at an early stage by the owner of the pony agreeing to pay £80 and all costs. A letter was in existence showing that the owner of the field had given notice to the owner of the pony to remove the pony or its shoes as it was dangerous to other horses, and on that the case was settled.

Elections and Nominations.

The following new Fellows were unanimously elected:
Capt. Martin Millar, A.V.C., Weedon, Northamptonshire.
Mr. G. H. Kitchin, M.R.C.V.S., Harrow-on-the-Hill.

Nominations for balloting at the next meeting were received on behalf of Mr. Arthur L. Wilson, Brixton; Capt. C. H. H. Joliffe, A.V.C., and Mr. W. N. Rowston, A.V.C.

PATHOLOGICAL ENTOMOLOGY.

By T. B. Goodall, F.R.C.V.S., F.L.S., Christchurch.

Mr. President and Gentlemen,—I need not tell you that I feel it a pleasure and privilege to address the Society on what has been to me a hobby throughout my life, namely, the study of insect life. It is a particularly interesting subject when the medical and veterinary world are beginning to realise the part that insects play in the spread of disease germs. I am going to tell you of a very few common facts known to most of you, and then I shall have to theorise a little. I shall tell you how these facts seem to strike me as being of interest to those who are conducting investigations with

regard to the propagation of disease, particularly in tropical countries. First of all I shall go into very simple matters. Entomology, as you know, is the study of insects, but many people say that anything small is an insect, some even going so far as to accuse a mouse of belonging to that category ! !

My first slide depicts a mite, a spider, and three typical insects—to show the characteristics of each. I have quite a collection of acari or mites.

The mites are all oviparous, the larva has six legs, and the mature mite eight legs ; the head and thorax are joined so closely to the abdomen that you can scarcely see any demarcation between the head, thorax, and abdomen.

The spiders are often called insects, they have the same kind of life history as the mite, but the head and thorax are joined, and the thorax and the abdomen are united by a narrow peduncle. They have eight legs, and the young have some of the characteristics of the adults.

The insects proper have only six legs, they have two pairs of wings, or rudiments of wings, and in all of them the head, thorax, and abdomen are separated by sharp constrictions. Another peculiarity is that they go through several stages or metamorphoses : first the egg, then the larva, generally a lively, hungry grub, quite unlike the matnre insect, then the chrysalis, and then the imago with wings. There are exceptions to this general rule as some are apterous.

The next slide shows the heads of midges, gnat and mosquito, with the points of fine needles used for dissecting, to give an idea of the comparative size of their very fine mouth-organs, the whole head is not so thick as the point of the needle.

Slides were shown depicting various kinds of " galls," and the flies causing them, with some of their inquilines and ichneumons.

At a meeting of the British Medical Association at Cambridge in the year 1880, Sir James Paget, the President of the Pathological Section, took Elemental Pathology as the subject of his address. In this he dealt primarily with diseases of plants as being suggestive as showing many of the characters of some ailments of man and the higher animals.

I had a copy of the address at the time and was much impressed by it, especially that part which dealt with the subject of "galls," the peculiar growths found on many trees and plants, especially the oak, and every year since then it has been to me a source of great pleasure to watch the growth and development of these curious excrescences, and to make myself familiar with the life histories of a few of the insects causing them—and a most fascinating study it is.

It is not my purpose to dwell to-night on this particular phase of pathological entomology except to repeat what Sir James Paget said twenty-six years ago—that a study of these " galls " and their makers, is well worthy of the attention of the pathologist of to-day. For what do we find ? Each " gall fly," and there are many hundreds of them known, deposits its eggs in a special part of the plant in which the sap is suitable for the support of its progeny ; some in the bud, some on the leaves, others in the flowers, twigs or roots, and there the egg lies quiescent for a certain time. At the hatching of the egg each tiny larva secretes a minute speck of an irritant with its saliva, which, by its action on the flowing sap, causes a growth, each peculiar to the particular insect. They are not laid haphazard, and they must be deposited in the particular part of the plant suitable for the growth of the gall of each insect.

The flies are all parthenogenetic, the winter broods are always agamous, and in some varieties males have never yet been found. Bearing then these facts in mind, can we not see some analogy in the methods of the blood-sucking flies of mammals.

If you watch some of them closely, you will notice that they do not bite indiscriminately at any part of the body on which they alight, but they feel their way about, using their palpi for this purpose, and choose the suitable spot before puncturing the skin, and commencing their feast. May we not assume that there is some object in this ?

Why should the Tabanidæ seem to prefer the thick skin of the back, and the outer parts of the arms and legs ? The Hippoboscidæ the thin skin of the perineum ? The Simulidæ the insides of the ears ? The Ceratopagon the prepuce and sheath ? The Hæmatobia the skin of the loins ? pushing its way down between the hairs.

May it not be that each fly finds at the particular spot chosen a sample of blood just suitable for its own taste ? and, further, may it not be assumed that, by the peculiarly appropriate structure of their mouth organs, they carry a minute smear of blood from a particular part of one animal to the same part of another. Perhaps those engaged in experimental inoculations might take a useful hint from this.

It is known that certain malarial organisms and piroplasma, pass through some stages of their existence in the blood of a warm-blooded host, and the reproductive stages proper, in the one case in mosquitoes, and in the other in ticks, but the stages passed in the blood can be repeated several times, the insect and tick phases being only necessary for rejuvenation. Surely flies can carry these organisms in these primary cyclical stages from host to host, if the blood containing them is taken from the proper part and injected again into the right place.

It seems to be now granted as a proved fact that piroplasma bovis, the blood parasites of redwater in cattle, can be transmitted through all the stages of the life cycle of the tick—from the mother to the egg, thence to the larva, nymph, and perfect tick again.

As this is proved to be so, think what are the possibilities in the knowledge of the life-histories of some of these flies.

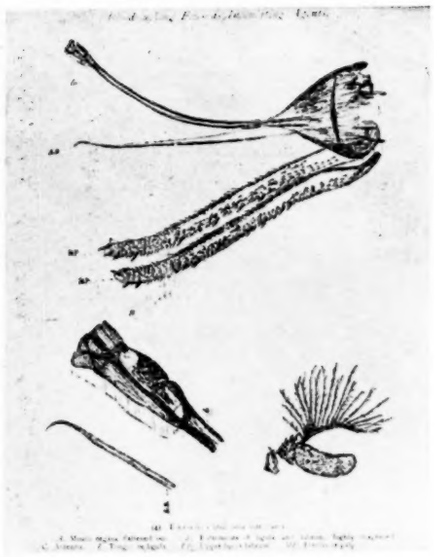
The Œstrus gastrophilus, for instance, might be the carrier of infection obtained in its early larval stages in the saliva, or in the stomach of the horse, by taking it through its stages to the imago again, and then carrying it to another horse.

The life history of the pupiparous flies would make them peculiarly adaptable for the transmission of hæmoparasites through all the stages of their life cycle, for the egg and larva are perfected in the body of the mother, and it is only at the pupa stage that it has a separate existence. And it may be that not without reason the ornithomyia is associated with the spreading of grouse disease, for it is a true pupiparous insect.

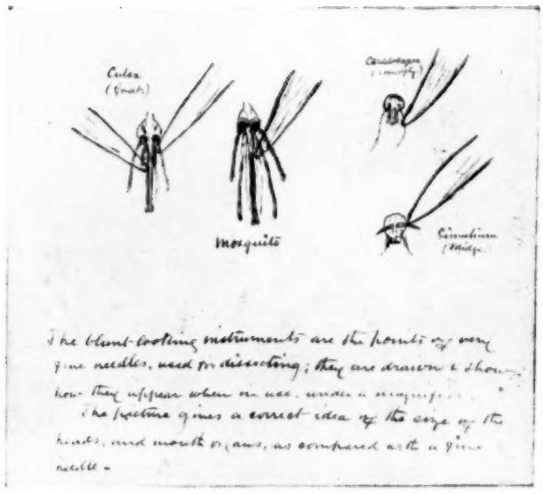
Many insects are perfect scavengers in their larval stages. The gnats, mosquitoes, stomoxyces, ceratopagon and simulidæ, as also fleas etc., how easy for them in old cess-pits, or ditches, to become infected with disease inducing organisms, which the perfect fly could introduce into the body of a suitable host.

The statement by Mr. Newstead in the interesting paper he prepared for the National meeting last year, that the tsetse fly was pupiparous has led me to go further into this, and to make comparisons between this and our own hippoboscidæ, and though they belong to quite different families, I find that they have many characteristics in common. They both cross their wings scissor fashion when at rest, which the stomoxyx (the blood relative you may say of the tsetse fly) does not, but more remarkable still is the similarity in the construction of the mouth organs.

When I mounted this, the mouth of the only tsetse fly I ever had the opportunity to examine, I thought I might have broken this ligula, because you will notice there is a remarkable kind of a fissure a short distance from the extremity, but I find just the same formation in



Proboscis of Glossina Morsitans. (*a*) Mouth organs flattened out: (*b*) Extremities of Ligula and Labrum, highly magnified: (*c*) Antenna.

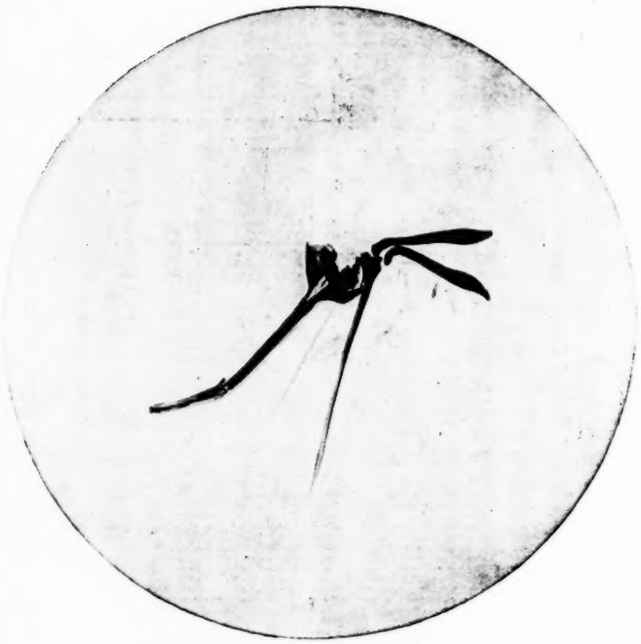


Heads of Culex: Mosquito: Ceratopagon: Simulium. The blunt looking instruments are the points of very fine needles, used for dissecting.

Proboscis of Hippobosca Equina.

Proboscis without palpæ.

To illustrate Mr. T. B. Goodall's paper, page 555.



Mouth of Hippobosca dissected, showing ligula and labrum separate.

Extremity of Proboscis, more highly magnified.

NOTE.—The real break is not to be confounded with the "fissure" a short distance from the extremity, which is the "break" mentioned in the text.

Proboscis of Melophagus Ovinis.

Extremity of Proboscis, more highly magnified

To illustrate Mr. T. B. Goodall's paper, page 555.

both the forest fly and sheep tick (our own home hippoboscidæ.)

Then again the proboscis of the tsetse and of the hippobosca is protected by large bristly maxillary palpi, though I see in the quite recent work of Stephens and Christophers "A Practical Study of Malaria" they, quoting from Dr. Theiler of the Transvaal, state that the Hippobosca rufipes has no maxillary palpi—just one of those little slips that show that quite eminent pathologists scarcely give entomology the exact care that they devote to their trypanosoma, piroplasma etc.

This feature of the large palps is quite unknown in the general order of the muscidæ, so really the tsetse seems to be something between the muscidæ and the hippobosca, and if it is really pupiparous and not oviparous—like the other muscidæ—what a difference would this knowledge make in our dealing with the fly, for the larva of muscidæ feed on decomposing organic matters, those of the hippoboscidæ in the bodies of their parent.

Another feature common in the Glossina and the Hippobosca is the onion-shaped bulb at the base of the proboscis. I do not think this is seen in any other fly.

In making investigations in a strange land the evidence of natives must be taken with a very large grain of salt. Some may be very observant but ignorant; as an instance, the New Forest natives believe implicitly that the Forest fly emerges from the hard oak gall of the Cynips Kollari. If you show incredulity he will tell you—"I know it, because I have seen him come out, and if you take him away from the forest he will always come back to his nest."

He has seen a fly bite its way out of the gall, and this shows he is observant, but he has jumped at conclusions, and has never noted the difference between a Forest fly and the Hymenopterous cynips. I should say that the statements of other native observers should be strictly analysed and verified before being taken seriously.

In this picture I show you the mouth of a forest fly as it might be mounted by an ordinary person not particularly careful. You will see there are no palps, they have been torn off from the little bits of skin. It is no easy task to dissect out and get everything in position on a microscope slide, and you may spoil a dozen or more before you get a good one to show all the parts. It needs great patience and perseverance.

This picture shows the mouth of the forest fly taken away from the palps. It shows the salivary glands on either side and the biting parts, and you will still see the break. In this one I have been fortunate, by a great deal of care, to dissect out what is called the labrum or lower lip, from the ligula proper. It is just exactly like that of the tsetse fly. The labrum comes to a very sharp point, and again you observe the same kind of break in the ligula. The next slide shows you the same more highly magnified. These are all from photographs, whereas those of the tsetse fly were from drawings, because it is hardly possible to get all the parts flat enough in a photograph to show clearly. You will see how remarkably this is like the mouth of the South African tsetse fly, although it belongs to a different order.

The foot of the forest fly is most interesting, but I will not detain you except to show you how it is possible for the fly to hang on. It secretes a kind of gluey secretion, and has this peculiar feather structure, which I pointed out to Miss Ormerod some years ago. The sheep tick has also the same kind of feather structure to assist it in holding on.

The next picture shows the antenna of the forest fly, and you will see how very different it is from the plumed antenna of the tsetse fly. This is peculiar to the Hippoboscidæ. It is very difficult to get it clearly shown, because it is in a kind of fossa in the head of the fly, and you may dissect a dozen heads before you get a good specimen under the microscope. I have never seen it mentioned in any book that there is a peculiar little kind of feather in the centre of the antenna of the forest fly. I show you it in this picture more highly magnified, in order to show the structure.

The next picture shows the mouth of another of the Hippoboscidæ, the common sheep tick. You see the large palps and the same kind of proboscis and sucking arrangements as seen in the tsetse fly, and the forest fly, and the same bulb at the end of the proboscis. You also see the salivary glands, and palps, and you can see how easily the palps might be broken off.

The next picture is the proboscis of the sheep tick more highly magnified, showing the peculiar break as in the Forest-fly and Tsetse-fly.

Hitherto I have simply been showing you a few slides that I made since I undertook this lecture, when I noticed the peculiar similarity between the biting parts of the Forest fly and the Tsetse fly.

The next picture shows the common stinger fly, Stomoxyx calcitrans, which is really what might be called a blood relation to the Tsetse-fly, but it is very different in its life history. This insect lays some two hundred or three hundred eggs. You can always tell this from the house fly because it carries the proboscis at an angle, it has a feathered arista to the antenna like the Tsetse fly.

The next picture is the larva of the stinger fly or Stomoxyx calcitrans. I took this from some dirty water, I have reared them in all kinds of filth. You see how different the life history would be from that of the Tsetse fly and the Forest fly. They deposit their eggs in decomposing organic matter, and after the larva has moulted two or three times, the skin dries up to an outer shell to form the pupa, and from this emerges the perfect fly. They have always this breathing apparatus, spiracles going to the end of the "tail," so that when their heads are inserted into any filth when feeding the breathing apparatus is outside carrying air to all parts of the body.

If disease producing organisms can be carried through the different stages of an insect's life as there are in the tick, there is a great range for study here.

This picture shows the mouth parts of the Stomoxyx. The antennæ are much like those of the Tsetse fly, except that the arista is not so much feathered. The Stomoxyx has very small palps indeed. You will see the horny kind of sheath, inside which there is the ligula by which it pierces the skin. If you care to watch an insect feeding on the back of your hand, you will see it forms a kind of vacuum with the labella, by which it draws the blood to the part. The ligula is here shown more highly magnified, exhibiting the very peculiar arrangement inside called the prepharynx, which keeps working up and down, pumping the blood into the ligula. This is the labrum which forms a kind of sheath for the ligula when it is at rest. It is just like putting the blade of a knife into a handle, and closing it into a sheath. The picture shows a little of the trachea where the blood passes down into the stomach proper.

I am going to take you now over half a dozen slides or so to show you the life history of a fly you all know. You may think it almost childish of me to talk about it except that I want to bring before your minds certain possibilities. I am going to give you a little outline of the life history of the æstrus—the ordinary botfly of the horse. The word "æstrus" signifies fear; why this should be associated with this fly I do not understand, because the horse will stand perfectly quiet and take no notice of the fly, but as soon as the gadfly or Tabanus settles on his back he begins to show every sign of fear. Therefore it should be the gadfly that should be called "æstrus." But I am going to talk about æstrus gastrophilus. They lay their eggs on the hair of the horse, in any part the horse can lick. It seems almost

more than instinct that a fly should do that, generation after generation. They will often lay their eggs in regions inaccessible to the horse's tongue, but in that case they lay them where, when two horses are together, one horse is in the habit of licking the other.

This picture shows a piece of skin from below the knee joint, showing the eggs on the hair. This picture shows a little larva I have hatched out myself. In order to do that it is necessary not to take any risks. I put the egg on a piece of glass, with my own saliva, and kept breathing on it until the little creature crawled out, I have had it mounted to show you. The skin has become too transparent in mounting in the Canada balsam. When they are hatched they have seven of these little hooklets round the mouth. The spiracles by which they breathe are also shown. In the struggle for existence they have to run the gauntlet. The fly lays about a thousand eggs approximately, so that as about the normal number is sustained, it is pretty certain that not more than one in a thousand gets through the various stages to maturity again. After they become attached to the stomach they drop all these little hooklets except two, and then they moult two or three times.

Many people even now attribute a great deal of harm to these larvæ which probably they are not responsible for. I was talking to one of our foremost veterinary surgeons a year or two ago about "bots," and he said he had a thoroughbred whose death was caused by them. He had found small bots that were quite red ; but they are always blood red when they are young, in the first two or three stages, and as they get older they become of a lighter colour.

This next picture shows a portion of the stomach of a horse with bots *in situ*. Such a photograph has to be taken very quickly, for they begin to drop off almost as soon as exposed. When the warm weather comes on, and they are approaching maturity, they let go their hold and pass away from the horse to the outer world and pupate. Although I have always thought they are not harmful, believing they sometimes acted as a kind of stomachic to many old horses turned out to grass, making them eat when perhaps they would not do so, I have come across cases where a certain amount of illness might be attributed to their presence, in horses that have not been, as it were, acclimatised, to them. At this time of the year, horses, hunters especially, suffer from a particular form of indigestion, their appetites being capricious, and I myself believe that that is when they have an overdose of some of these bots, and some of them have attached themselves to the villous portion of the stomach. As soon as these larvæ leave the body of their host they bury themselves in the soil and there pupate. When the mature insect emerges, the male will sing a sort of love song I suppose for his wife, buzzing continuously.

If it is possible piroplasma can pass through all the stages of the tick, why should they not pass through the stages of a botfly? When horses are suffering from these blood parasites and these bots are found adhering to the stomach, it is possible they may become impregnated, and pass the parasites on to other animals ; but I only throw that out as a hint to anyone who may be investigating such causes of communication of such diseases.

I will now show you a little of the life history of the gnat and the mosquito. The gnats lay their eggs always on dirty water. In many of the books on tropical diseases it is often said the mosquito will lay its eggs indiscriminately on clean or dirty water, but I can only say, from many years experience, that although they might lay their eggs on clean water when they cannot get dirty water, you can never breed them in anything but foul water. They are most voracious in their larval stages. The first thing they do is to demolish their eggshells, and they never leave off eating, except during their moults, until they get to the pupa stage. Some larvæ that I have taken out of dirty water and put into clean water have very soon found their way out again. In the picture you will see that some of the gnats are just emerging from their pupa cases, and it is interesting to watch them on a tub of water. The eggs are laid on the surface. The larvæ live under the water, coming to the surface to breathe by their spiracles. The pupa is active, and at the time of emergence of the imago, the case acts as a raft, the imagos first draw out their legs and then unfold their wings, and off they go. If there is the least ripple on the surface of the water they are drowned. If the least speck of wet gets on to their wings before they are spread out to dry properly they die. When there is a little breeze rippling the water it is common to find hundreds of dead gnats on the surface. Once the wings dry, a gnat can fly about in a rain storm, and dodge every rain drop that falls. When they are laying their eggs, the old gnat takes her position on the side of the tub at the water level and begins to deposit her eggs, agglutinating them in the shape of a raft, as seen in the picture. These rafts drift about, having the appearance of little pieces of soot. The first time I saw them, I thought I had got hold of some very wonderful thing, some sort of actinomycosis or something of that sort. The eggs are all furnished with little lids on the ends resting on the water, from which the young ones emerge.

The next picture shows a larva. As they are in the water and feeding, they bring the little spiracle part up to the top, and upon it a sort of little anchor is spread which keeps them afloat and prevents water entering, and the spiracles carry the air all over the body. Their mouths will be observed to be working at a tremendous rate, selecting the food they want, and rejecting what they do not want. It is ridiculous to talk about these creatures being able to live, or go through their life history, in clean water ; they must have food to eat, and they only find it in foul water.

The next picture shows a perfect gnat and mosquito side by side and explains how you can differentiate them. It is not only the way they stand, the mosquito with his hind pair of legs always up, and his head towards the ground, but you can see at a glance, that a mosquito always has long palps that go right away to the end of the biting parts proper, while the gnats have only very short palps. You will see the mouth part of a gnat dissected out to show the structure. This is the labrum with the labella at the end, in which all the mouth parts are enclosed. You can see very faintly the mandibles and the maxillæ. You also see the ligula, I think it will impress upon you what a wonderful structure the mouth of the gnat is, especially when you see it more highly magnified. If you bear in mind the comparison between the point of a fine needle, and these hair-like organs, and think of them being furnished with recurved hooklets, and fringes of hair, you can form some idea of the wondrous beauty of things infinitely small.

The next picture is that of the eggs of Chironomus plumosus, a kind of midge. When laid on the surface of the tub, they look like a little blood worm, but under the magnifier you find they are eggs in whorls of jelly, like frogs' eggs. If you put one of these masses in a glass bottle with some ordinary water, you will find after a time the eggs begin to hatch out into very lively little worms ; the blood worms found in water. They never come to the top to breathe ; they eat ravenously, and they have a great tenacity of life. I have kept these little blood worms in jars during hard frosts when the water has become frozen into a hard mass, but when a thaw has come, they have been as lively as ever. They go to the bottom of the glass, and make a little cocoon

of dirt or *débris*, and live quite comfortably. If they are so tenacious of life, it may be taken that others are also; though most of the gnats and mosquitoes hibernate during the winter.

The next picture shows the Tabanus bovis or gadfly of the ox. This insect lays her eggs on damp ground and the larvæ are carnivorous.

The next picture shows the biting parts of the mouth of the Tabanus. You will notice on the maxilla a whole lot of little recurved hooklets, which I always call the inoculating instruments. This is one of the biggest flies we have.

The next photograph shows the end of the labrum very highly magnified, showing how it forms a veritable cupping instrument. The little tracheæ are put hard on to the skin, a vacuum is formed, and the blood is sucked up.

The next is a drawing I have made of the mouth of a Tabanus, showing the serrated edge of the mandible where it cuts through the skin. It seems easy for them to get daubed with blood and carry it to the next animal on which they alight.

This is the Simulium that takes its nourishment from the skin inside the horse's ears. In the books it is said they are only found in Scotland, but we have them in other parts of the country as well, and they are very common in the New Forest. In this part of the country people use ear caps to protect horses from them. They distend themselves with blood and tumble off when full.

The next picture shows the head of the larva of the Simulium. These larvæ are not very particular about dirty water, but they hate sunlight. They adhere to the side of the vessel when feeding by a kind of tubercle at the end of the body; they have in addition another in the front of the body, which acts as a kind of false foot. They float out into the water and open out a fanlike structure on either side of the mouth, but when disturbed this closes like a little hard rod. By the action of these fans they are able to bring water from nearly an inch away.

The palps of the perfect insect are very wonderful, being covered with minute feelers. The mandible of this insect has a sort of double-edged saw, with teeth on both sides of the blade, to saw through the skin.

The last picture I show you is the Ceratopagon pulicaris or sand fly, that has a nasty habit of getting under the hats of fishermen and others, or under the wristbands. They are awful biters and suck blood indiscriminately.

The lecture was illustrated with slides showing amongst others phases in the life-histories of:—

Hippobosca equina (Forest-fly).
Æstrus gastrophilus (Bot-fly of the horse).
Stomoxyx calcitrans (Stinger-fly).
Culex pipiens (Common gnat).
Chironomus plumosus (a Midge).
Tabanus bovis (Gad-fly of ox).
Simulium reptans (Ear-fiy).

He also showed on the screen pictures of the perfect insects, and Ceratopagon pulicaris, and dissections of their mouth organs.

The PRESIDENT expressed the thanks of the Society to Mr. Goodall for his lecture, and the discussion on the paper was adjourned to the next meeting.

A vote of thanks was passed to those Fellows who had exhibited morbid specimens and the meeting closed.

HUGH A. MACCORMACK, *Hon. Sec.*

SOUTHERN COUNTIES VETERINARY SOCIETY.

SPECIAL MEETING AT BRIGHTON.

A special meeting convened in response to a requisition signed by seven members was held at the New Ship Hotel, Brighton, on Monday, Feb. 18. The President (Mr. W. K. Stuart, Hove) took the chair, and the other members present were: Messrs. Gerald W. Bloxsome, Hove; W. Burt, Junr., Brighton; H. E. Audley Charles, Brighton; J. H. Lockwood, Brighton; G. H. Livesey, Hove; H. Smith, Worthing; J. Alex. Todd, Worthing, Hon. Sec.

On the proposition of Mr. Bloxsome, seconded by Mr. H. E. Audley Charles, the minutes of the last meeting as published in *The Veterinary Record* were taken as read and confirmed.

The HON. SEC. announced the receipt of letters or telegrams expressing regret at inability to attend from Major J. A. Meredith, 1st Life Guards; Messrs. J. F. Simpson, J. B. Martin, A. Maynard, Percy J. Simpson, W. Shipley, T. B. Goodall, E. Lionel Stroud, A. Wheatley, C. H. Spurgeon, Wm. Caudwell, H. H. Jeffries, L. Barnard, E. Whitley Baker, J. H. Callow, J. W. Pritchard, W. A. Collins, H. Redford, R. Porch, and R. and C. Roberts.

The HON. SEC. also reported the receipt of letters from Mrs. Pritchard and Mrs. Herbert Hall acknowledging the resolutions of condolence passed at the last meeting of the Society.

Mr. LIVESEY proposed that they should pass a vote of sympathy with Mr Wheatley in his recent accident, and couple with it an expression of their wish that he might soon be restored to health.—Mr. H. Smith seconded, and the proposition was carried by acclamation.

The next business on the agenda was to consider the desirability of nominating a member of the Society for election to the Council of the R.C.V.S., and in connection herewith to further consider the resolution passed at the last meeting *re* inviting nominees for election to attend the Eastbourne meeting and express their views upon subjects affecting the welfare of the profession."

The PRESIDENT explained that this had been put on the agenda to enable them to have their political talk that day instead of leaving it till the Eastbourne meeting.

Mr. H. E. AUDLEY CHARLES thought he would be expressing the general opinion of the great majority of the members when he said they hoped Mr. Todd would see his way to stand as a candidates for Council. They all knew the good work he had done both for that Society and the profession in general, and he was convinced that if only he would allow himself to be nominated it would give general satisfaction. (Hear, hear).

Mr. J. ALEX. TODD replied that he was very much obliged to Mr. Charles, but he must absolutely decline to take on any fresh duties.

Mr. CHARLES: We want to back up somebody else as well as yourself, but we should be particularly pleased to have the oyportunity of running you.

Mr. TODD: I am very sorry but I could not possibly see my way to stand. My duties as Secretary are quite as much as I can undertake. Besides we have several other member who would make far better representatives. ("No, no.")

Mr. LOCKWOOD was very sorry to hear Mr. Todd decline, and hoped he would reconsider his decision. (Hear, hear.)

Mr. TODD: No, my refusal is final.

Mr. LIVESEY on a point of order asked if they were justified in nominating a candidate for election to the Council before they had settled the desirability of their doing it. According to the agenda the first point they

had to consider was whether or not it was desirable a member of their Society should be nominated for election.

The PRESIDENT agreed that the question ought to be settled first of all. He did not think they were quite unanimous on the point, but taking it altogether he failed to see that it would do any harm for them to rnn a candidate for the Council, and and at all events it would let the Council see that they were in earnest in their desire to put a stop to all this quackery that was now so prevalent. They did not want to be always talking politics, but they wanted to know what was happening from time to time. As he said, they were not quite unanimous, but he thought the majority of their members were in favour either of nominating one of their own members or of backing up a man belonging to another Society who was in sympathy with their views and objects. There were one or two against this, but they were mostly men who were already on the Council.

Mr. LIVESEY asked if they might hear the opinions of those present that afternoon. This was a very important question and they could not give it too much consideration.

Mr. LOCKWOOD thought it most desirable that they should be represented on the Council. It might be said that they were represented now, but the present members of the Council who belonged to the Southern Counties Society were more closely connected with other societies. Personally he had never heard any real argument why they should not be directly represented, and although he did not anticipate that they would be able to do much good at first it would show the profession in other parts of the country that they were in earnest.

Mr. H. SMITH, on being asked by the President for his views, replied that he should be more inclined to vote for a man whose views he had heard whether he belonged to that or to any other Society. He was strongly in favour of ascertaining what a man was going to do when he got on the Council before he voted for him. From what he could gather, they had worked in a lot of drones, whereas what they wanted on the Council was some members with plenty of energy and enthusiasm and who would do something to benefit the profession.

Mr. LIVESEY: What about nominating a member of our own Society?

Mr SMITH: Of course I would rather see a man nominated that I knew something about, but I would even vote for a complete stranger if his views coincided with what I thought the profession required. At present we seem to follow others like a flock of sheep.

Mr. J. ALEX. TODD: I take it that you consider the election addresses as published are much too vague.

Mr. H. SMITH: Yes; and they are like a lawyer's letter, they can generally be construed into anything.

Mr. BLOXSOME expressed himself as being in sympathy with Mr. Smith on this question. He did not think it was absolutely necessary that they should nominate a member of their own Society, but what they did want was somebody who was in sympathy with their views and aims. Possibly they might stand a much greater chance of getting such a candidate in if he were not exclusively a member of the Southern Counties' Society, but by all means let them ascertain what his views were first and what he would do if he got on the Council. If they did that and they afterwards found out their man did not carry out his promises they could refrain from supporting him a second time. The only thing he was afraid of was whether any of their own members would receive as much support as certain other members who had been before the profession for a longer time.

Mr. CHARLES remarked that there was one point that had not been touched upon and that was the desirability of having some younger blood on the Council. They had some very nice and interesting old gentlemen who were supposed to look after the interests of the profession, but their conduct of affairs had not given universal satisfaction, and he for one thought it was quite time they got some younger blood on the Council. He also thought the members of the Southern Counties Society taking them as a body had proved themselves worthy of being nominated by the active interest they had shown in matters affecting the welfare of the profession. When he suggested the nomination of a candidate he did not necessarily mean that they should confine it to any one man or that they should support their men because they were members of the Southern Counties, but on the other hand if it was made known that they were running their candidates because they knew them to be energetic and useful men, there was no reason why they should not receive a good deal of support from some of the other societies. Again he believed it was a very common thing for their Secretary to receive communications from other Societies asking for their support on behalf of the nominees of those Societies, and if this was so and they had a candidate of their own they could reply "We will back your man if you will back ours." He also thought that if they nominate any candidate or candidates they should make the views held by them known to other Societies so that members of the profession in other parts of the country might know what they would be voting for. If they worked matters properly he saw no reason why they should not stand a good chance of getting a man on the Council the first time. They would then have someone to whom they could refer and from whom they could find out what was going on. He had mentioned the name of their Hon. Secretary, but there was another member, Mr. Burt, who would also make an excellent member of the Council. He had this advantage, that he was not single handed, and was a member of one of the oldest veterinary families, he supposed, in the South. In nominating him, he should not nominate him because he was a member of the Southern Counties Society so much as because he believed he would make a useful member of the Council and would work for the best interests of the profession as a whole, but at the same time he hoped this Society would back him up and do its best to get him in. The present members of the Council were all of them excellent fellows personally, but he thought it was quite time some of them sat down and made room for some of the younger and more energetic members of the profession. They had no idea what a struggle it was for existence now, what with the competition of motor cars and quacks and other infernal nuisances—(laughter)—and if the Council was not going to protect them from the unfair competition of these quacks, they might just as well start advertising themselves. He should be very pleased to sign a nomination paper for Mr. Todd, Mr. Burt or any other member of the profession whose views he knew.

Mr. J. ALEX. TODD was quite in sympathy with the idea of their getting an active member of their Society on the Council of the College, and it was their duty if one was nominated not only to support him by their own votes but to invoke the aid of other Societies on his behalf (Hear, hear). At present the only members of the Council who were also members of the Southern Counties Society were Mr. F. W. Wragg, of London, Mr. Simpson, of Maidenhead, and Mr. Shipley, of Great Yarmouth, and neither of these three were coming out for re-election this year. They must also bear in mind they were comparatively speaking a young, or rather rejuvenated, Society. They certainly had got about a bit and made their voices heard in the land, but all the same they were really a young Society and must go carefully. They did not want to upset any of the older members if they could help it. Mr. Simpson, for instance,

had always taken a great interest in their Society, as he did in any Society to which he belonged, and so far as he was concerned he thought their thanks were due to him for the action he had taken on the Registration Committee. He (Mr. Simpson) saw at their last meeting that they meant business, and he had acted accordingly. If only they could get and keep members like him, he believed it was only a question of time before they would get what they wanted, but if they were too precipitate now they might get into trouble with some of the older members and fail to carry out what they were most anxious to obtain—the suppression of quackery and all that sort of thing. He was quite in favour of their Society being represented on the Council by one of their own members, and if a member was nominated he thought it was their duty to support him tooth and nail, but they had got to go to work carefully.

Mr. BURT was a firm believer in the desirability of their putting their own man on the Council if they could possibly get him there. He also agreed that they must go to work discreetly if they wanted to get one on this year, but in any case he thought it was worth their trying even if they did not succeed. If their own nominee did not get elected it would not matter much, although he sincerely hoped he would be successful (Applause). It was the younger men of to-day who would have to govern the profession in a few years time, and that being so they might just as well make a start with the work as soon as they possibly could.

Mr. G. H. LIVESEY desired to say a few words as he had been responsible for bringing this before the Society. He also brought it before the Central Society, and when his resolution came before the latter Society he was astonished at the concensus of opinion there was against it—the voting against it was 43 to 3 he believed, and of the three who voted for it one was himself, another was his seconder, who would probably have been glad to have got out of it, and the third was his partner. The Central Society was evidently strongly against the idea of a man going down to a Society, expressing his views on the politics of the profession, and thereby obtaining a vote of confidence. That seemed to be the bugbear of the whole thing—the vote of confidence. They did not mind a man attending a meeting of a Society and expressing his views so much, but they were afraid that if a candidate expressed his views, he might so secure the support of the Society as to make the Society commit itself to supporting the individual rather than the best interests of the profession. With regard to their own Society, they were young, active and extremely energetic, and in the opinion of many of their members the time had come when its voice ought to be heard in the Council Chamber of the College. The Council, as at present constituted, seemed absolutely unwilling to give effect to their views and wishes. What little they were doing he believed they were doing grudgingly; and they were not alone as a Society in thinking that the Council were not acting in the best interests of the profession. He read in *The Record* the other day that the Central Veterinary Medical Association of Ireland held very strong opinions as to the action of the Council. According to one member they consisted of a lot of dead heads, wanted rejuvenating, and required new blood. That being so, if they were to nominate a member of their own Society with a view to introducing a little new blood on the Council, he thought their candidate could count on receiving the support of the Irish members. But if they nominated one of their own members they must not do it with the idea that he was only to serve them. They were about 70 strong, he believed, but 70 votes would not get a man on the Council, and they would simply be running their heads against a brick wall if they tried to get a man in as the special representative of their own Society. What they wanted was to show the profession that their policy was the best policy in the interests of the profession as a whole, and to ask for the support of other Societies on the ground of their candidates policy rather than because he happened to be a member of the Southern Counties Society. If they adopted this course he was sanguine that their man would receive the support of a good majority of the profession. It appeared from the opinions given expression to by Mr. Hunting and others, that a great many members were labouring under the fallacy that there was a danger of their Society becoming a political one and running men entirely for their own ends rather than for the good of the profession, but he was sure none of them wished to see that come to pass, and if they carried out their intention of inviting candidates for election to express their views at the Eastbourne meeting, it should be on the distinct understanding that no vote of confidence would be permitted, and that each individual should be left entirely free to support whoever he liked (Hear, hear). Unless this was made clear they might perhaps bring themselves into bad odour with the rest of the profession and do themselves more harm than good.

The PRESIDENT remarked that having heard all of those present that afternoon, he gathered that they were in favour of nominating a candidate for Council, but that they wished to run him on account of his policy and not as a member of their own Society. Personally, he certainly thought it was advisable to nominate a man at once instead of waiting till another year, because there was no doubt that the Council as at present constituted were not keeping abreast of the times, and they wanted to show them that they down in the south were really in earnest in their determination to put down quackery and obtain the full benefits of their charter (Hear, hear). He took it that if they put a man up for election, the only things they wanted him to pledge himself to was to put down quackery, work for the advancement of the profession as a whole, and to look after the rights of their Charter (Hear, hear).

Mr. H. E. AUDLEY CHARLES then proposed, Mr. H. Smith seconded, and Mr. Bloxsome supported a proposition that Mr. W. Burt, jun., should be nominated for election on the Council, and the latter having expressed his willingness to do his best if elected to "put down quackery, work for the advancement of the profession and see that members got the full benefits of their Charter." The proposition was carried unanimously.

It was also proposed by Mr. Livesey, seconded by Mr. Lockwood, and carried unanimously:—"That the Hon. Secretary, together with two other members of the Society, be appointed a Committee to draw up a circular which shall be sent round to all known nominees for election on the Council, stating definitely what the policy of the Southern Counties Veterinary Society is, and asking (for the information of members of the profession generally) whether they would be prepared to support that policy; also extending an invitation to them to attend the Eastbourne meeting if they so desire and express their views there."

Mr. LIVESEY: And it is also understood that there will be no vote of confidence permitted.

The PRESIDENT: That is so, we merely want their views for our own information.

Mr. LIVESEY suggested that Mr. E. Whitley Baker, of Wimborne, should be one of the Committee to draw up the circular, and this was seconded by Mr. Smith and carried.

Mr. SMITH proposed Mr. C. Pack, of Lymington, as the other member. Mr. Bloxsome seconded this, and it was also carried.

An informal discussion next took place with regard to the advisability of inviting the National Veterinary Association to hold its 1908 Congress in the South with a view to making a recommendation to this effect to the

annual meeting of the Society at Eastbourne at the end of March, and the general opinion of those present was distinctly favourable to the idea.

The next item on the agenda was to further consider the attitude of the profession towards the so-called canine and feline medical expert, and in connection with this matter the Hon. Sec. reported that he had written to Mr. Thatcher who had replied that the matter was receiving attention.

Mr. LIVESEY added that he had also taken it upon himself to write to Mr. Thatcher, and the latter, after consulting with the President, had replied that he could not at present give any information that could be handed to the Society.

Some interesting post-mortem specimens were next exhibited by Mr. G. W. Bloxsome, and evoked considerable discussion.

Mr. LIVESEY said the members had no doubt seen the very congratulatory notices which had appeared in the Press respecting the decision of the Committee of the South Coast Kennel Society to exclude all quack medicine vendors from having stalls at any of the Society's shows or advertising in the catalogues. This had given great gratification to them as members of the veterinary profession, and inasmuch as their Society took the matter up in the first instance he thought it would be a graceful act if their Secretary were to write to the Committee of the South Coast Kennel Society thanking them for their action and expressing the hope that other similar societies would see their way to fall into line with them.

Mr. SMITH seconded this, and the same was at once carried by acclamation.

Mr. TODD thought the Society also ought to award a vote of thanks to Mr. Livesey for the action he took in the matter. He was the first to raise the question, and although he (Mr. Todd) and the other veterinary surgeons who were associated with the Society assisted him as far as they could, it was largely due to Mr. Livesey's efforts and also those of Mr. Burt that they had met with the success they had. Personally, he though the South Coast Kennel Society had met them most graciously.

Mr. H. SMITH also seconded this proposi ion, which was agreed to *nem. con.*, and

Mr. LIVESEY, in acknowledging the compliment, observed that it was a little bit of encouragement to them in their crusade against quackery, and he hoped they would always meet with the same consideration as they had received from the South Coast Kennel Society. For himself he could only say that he should go on and do the same thing in future wherever he got the chance. (Applause.)

A vote of thanks to the President for presiding brought the meeting to a close.

Subsequently the members dined together in the hotel. The chair was taken by Mr. Walter Burt, junr., and a very enjoyable reunion was the result.

J. ALEX. TODD, *Hon. Sec.*

EASTERN COUNTIES VETERINARY MEDICAL SOCIETY.

The annual meeting was held on Thursday, Feb. 14, at the Castle Hotel, Norwich, when there was a good attendance of members. The retiring President, Mr. H. Buckingham, Harleston, occupied the chair, and was supported by Messrs. W. Bower, East Rudham; F. Low, J. Pollock, G. Mayall, W. Howes, Norwich; S. Smith, Lowestoft; F. B. O. Taylor, Weston; W. N. Jurgensen, Ipswich; R. Howard, Thetford; W. Little, W. Shipley, Yarmouth; E. Margarson, Swaffham; J. R. Godbolt, Stowmarket; J. F. Simpson, Maidenhead; F. M. Wallis, Halstead; W. M. Reeman, Bury St. Edmunds; J. K. Gooch, Holt; and Harry P. Standley, Wymondham.

The members first luuched together, after which the loyal toast was heartily honoured.

VETERINARY EVIDENCE IN CRUELTY CASES.

Mr. SHIPLEY asked what ensued upon the sending up to the College solicitor of a shorthand note of the evidence in a horse cruelty case at Diss, in which no veterinary was called on either side.

The HON. SEC. said he simply received an acknowledgment from the Solicitor dated Nov. 28, 1906.

The PRESIDENT said the report was obtained, paid for, and sent off to the Solicitor, as it was requested should be done when there were cases of the kind in their district.

The HON. SEC. explained that a covering letter was sent to the Solicitor in which it was stated the circular had been received, and acting upon it, this case was sent up.

ACCOUNTS.

The financial statement showed that the year was commenced with a balance in hand of £17 13s. 11d., and they now had a balance of £42 17s. 11s. Mr. Shipley moved the adoption of this statement which was seconded by Mr. Margarson, and carried.

ELECTION AND NOMINATION.

Mr. W. E. LIVOCK, Newmarket, who had been nominated at the last meting, was now elected a member of the Society.

Mr. SIDNEY SMITH, jun., was nominated as a new member on proposition of Mr. W. Shipley, seconded by Mr. Bower.—Agreed to.

ELECTION OF OFFICERS.

President.—Mr. Bower said he had pleasure in submitting the name of a gentleman as their next President which he was sure would meet with the approbation of all present. He had much gratification in nominating Mr. FRED LOW (App.), who was so well known to all of them. He could say nothing in his favour of which they were not already aware.—Mr. Santy seconded as an old fellow practitioner of Mr. Low, who he said he had known for a great many years and he was confident he would do honour to their Society. (Applause.)

The resolution was then put and carried unanimously by acclamation, the President remarking that the Society was to be congratulated.

The PRESIDENT-ELECT said he thanked the members for the honour done him, which he appreciated all the more because he did not think he deserved it as for some time he had not attended their meetings very regularly though he had not wilfully absented himself. He hoped that during his year of office he would be able to carry out his duties to the satisfaction of the members.

Vice-Presidents.—Mr. Shipley proposed the re-election of Mr. A. S. AUGER, Saxmundham; and Mr. W. M. REEMAN, Bury St. Edmunds, with the election of Mr. H. BUCKINGHAM. Harleston. in place of Mr. F. M. Wallis, who retired.—Mr. Wallis seconded, and this was carried.

Committee.—The Hon. Sec. proposed that Messrs T. E. AUGER, Wymondham; J. K. GOOCH, Holt; R HOWARD, Thetford; W. SHIPLEY, Yarmouth; W. E. HOWES, Norwich; G. HUNTING, Stalham; and S. SMITH, Lowestoft, be re-elected with the addition of Mr. F. B. O. TAYLOR, Weston, in place of Mr. J. D. Overed, Blofield, who had resigned.—Mr. Bee seconded and this was carried.

Auditors.—Mr. Wallis moved the re-election of Messrs. J. POLLOCK, Norwich, and P. TURNER, Ixworth. Mr. Bee seconded, and this was also agreed to.

Hon. Sec. and Treas.—The President proposed the re-election of Mr. H. P. STANDLEY, who he said had carried out his duties for several years to their entire satisfaction. He, like previous presidents, owed him a debt of gratitude for the kind assistonce he had always given. Mr. Standley had spared neither time, trouble, nor expense to forward the interests of the Society, and had been most helpful in every way. They hoped that he might continue to fill the office for many years. (App.)—Mr. Simpson said he seconded this proposal with the greatest pleasure, as the business-like way in which Mr. Standley carried out his duties must be satisfactory to everybody.

The resolution was carried unanimously, and Mr. Standley in his acknowledgment, said he would try to do his utmost for the Society for another twelve months.

Mr. SHIPLEY said that this year the Society would have a good deal of expense in connection with the National Association visit and he therefore proposed that they withhold their charitable donations for the present till they knew what funds they had in hand. After July the matter could be again considered.

Mr. MARGARSON seconded, and this was carried.

COUNCIL ELECTION.

The HON. SEC. read a letter from the Lancashire Veterinary Medical Association intimating that its two retiring representatives, Mr. A. Lawson and Mr. S. Locke, would be re-nominated, and asking that the Eastern Counties would combine with it and the Yorkshire and Liverpool Societies as previously. He moved accordingly.

Mr. WALLIS seconded, and this was carried.

RESIGNATIONS.

The HON. SEC. read a letter from Mr. F. A. Simkin resigning his membership on the grouud of his giving up practice. Mr. Shipley proposed, Mr. Reeman seconded, that the resignation be accepted, and this was agreed to.

Mr. J. D. Overed, of Blofield, wrote stating that owing to feeble health and advancing years he was no longer able to take an active part in the Association.

Mr. BOWER said the least they could do was to accept this resignation with very great regret, and he would propose that Mr. Overed, who had been a very useful member, be elected an honorary associate.

Mr. SMITH seconded, and this was carried amid applause.

THE NATIONAL MEETING AT YARMOUTH.

The arrangements for the entertainment of the National Veterinary Association on its visit to Yarmouth, were then discussed. The Hon. Sec. reported that the subscription list now stood at £100, and on the motion of Mr. REEMAN, seconded by Mr. SIMPSON, 20 guineas was voted from the Society's funds. It was agreed that a steamer trip to Norwich should be the principal part of the programme.

NEXT MEETING.

Mr. SHIPLEY said that their summer meeting would not be held owing to the National visit.

Mr. WALLIS moved that the next meeting be held in September. Mr. Shipley seconded, and this was carried.

Mr. JURGENSEN proposed that it be held at Ipswich. Mr. GOOCH seconded, and this was carried.

ADRENALIN IN VETERINARY SURGERY AND DIAGNOSIS.

Mr. J. K. GOOCH, M.R.C.V.S., Holt.

Having recently obtained very gratifying results from the use of adrenalin in the ordinary course of practice, I think the following notes of cases treated therewith may be of interest to other members of the profession.

Perhaps it is scarcely necessary to mention that adrenalin is the active principle of the suprarenal gland; for since it was placed on the market in 1901 it has come into the foremost place in medicine and surgery. Its stimulating effect on the heart is probably greater and more immediate than that of any other agent, while it has, when injected hypod rmically, the remarkable property of producing ischæmia in the part affected, thereby allowing operations to be performed without hæmorrhage. Adrenalin is therefore of daily use amongst the medical profession but is not so generally employed by veterinarians as its valuable properties merit.

The most commonly used form of the drug, and the one that I first employed, is adrenalin chloride solution 1 in 1000, but the manufacturers, Messrs. Parke, Davis & Co., now issue it in various forms and combinations. Tablets are supplied for convenience in transport and storage, one of which dissolved in 1 c.c. (17 minims) of recently boiled water will produce a solution of 1 in 1000 strength.

It has been found that adrenalin greatly assists the anæsthetic action of eucaine and cocaine by localising the area on which the drugs act, and solutions and tablets are prepared in which both agents are combined. The solution of eucaine with adrenalin is termed "Eudrenine" and of cocaine with adrenalin "Codrenine," both of which, on suitable dilution, will produce injections of the desired strength.

One advantage in using these solutions is that while freshly prepared anæsthetic solutions soon lose their efficiency, Eudrenine and Codrenine are said to retain their activity permanently.

These analgesic combinations have proved very effective according to E. Wallis Hoare (*The Veterinary Record*, Dec. 9, 1905) and others, in various operations, such as tumours, firing, neurectomy, removal of cysts, etc., not only saving the animal all pain, but greatly simplifying the operation for the surgeon by obviating the necessity of general anæsthesia by chloroform, and by providing a bloodless, or almost bloodless, field, allowing him thus without difficulty to locate and ligature the large blood-vessels.

My first case is that of a pony to which I was called on June 6, 1905, and which was reported to me as having been lame for some days and gradually getting worse.

On attending at the stables, I found the pony, an animal about eight or nine years old, very lame on the off fore leg; when walking the toe was dragged on the ground, and he was unable to bear any weight on the limb. Careful examination failed to disclose anything to account for such severe lameness, and I came to the conclusion that it was probably a case of shoulder lameness. I gave him some physic and left a lotion to be applied to the shoulder. As there was no improvement within three days, a blister was applied. I saw him again two days later and there being still no improvement, I determined to try an in injection of adrenalin and cocaine, in the hope of being able to locate the mischief. On July 26, I injected over the shoulder 10 c.c. (about 160 minims) of a solution consisting of cocaine hydro-chloride 4 grains, normal saline solution 1 ounce, and adrenalin chloride solution 15 minims. (This injection can be more readily made by taking equal parts of Codrenine and saline solution). There being no signs of improvement in half-an-hour, I decided to inject the knee, and this was done on the following morning, the same quantity of the solution being injected over the joint. In about twenty minutes the pony walked sound but was slightly lame on the trot.

Having located the trouble, I thought it advisable to fire the knee, and arranged to do this on July 29. Owing to pressure of business I was unable to keep my appointment until Aug. 3, when I was surprised to find the pony still free from lameness, and the groom informed me that there had at no time been any return of the

trouble. I still thought it advisable to fire the knee, and this having been done he was given five weeks' rest. As he was going sound at the end of that time, he was put to work, and up to the present there has been no return of the lameness.

On Sept. 11, 1906, I was called to a cart mare, lame on the off hind leg. The owner informed me she had been slightly lame for several weeks, but that at first the lameness almost disappeared after she had been at work a short time. Lately she had become worse, and he was unable to work her. I found she had a large bony growth at the seat of ringbone, the part being hot and tender to the touch, which however might have been caused by the stimulating liniment which had been applied for several days previously. With the exception of the large ringbone, I failed to detect anything amiss with the limb, and came to the conclusion that the ringbone was the cause of lameness. The mare was placed in a good roomy loose box, a physic ball was given, and the part was treated with warm fomentations, and sedative lotions. In three or four days the lameness had increased, and she was suffering considerable pain, the appetite was impaired, and when laid she had great difficulty in rising. She was now placed in slings, in which she stood badly, continually leaning the lame side against the wall, and was with difficulty made to move.

I now suspected that the ringbone was not the cause of lameness, and injected 5 c.c. of the adrenalin and cocaine solution into the leg over the course of the nerves. There being no improvement in half-an-hour I was convinced the ringbone was not producing the lameness. A careful examination was again made and the pelvis explored per rectum, but nothing could be detected. I now thought it possible the hip joint was the seat of mischief, and had not my supply of the adrenalin solution been exhausted would have injected this part. However, an extensive blister was applied over the hip and in a few days there was a marked improvement, the appetite improved and she stood well in the slings. The blister was repeated at intervals of about three weeks and she eventually made a good recovery.

On January 1st of last year, late in the afternoon, I got an urgent message to attend a dog that had been accidentally shot by his owner at a distance of about fourteen paces, the messenger saying he believed the dog would be dead before my arrival. I found the dog a well bred retriever, and highly valued by his owner, in a state of extreme collapse, the heart beats almost imperceptible, visible mucous membrane blanched, eyes amaurotic, and apparently in a dying condition. On examination I found the whole charge, with the exception of a few pellets which had entered the testicles and thighs, had struck him just below and slightly to the right of the rectum, causing a circular ragged wound a little larger than a half crown, from which blood was flowing, but it was evident the principal hæmorrhage was going on internally.

I immediately injected deeply into the wound 5 c.c. of a 1:10,000 solution of adrenalin, afterwards packing with cotton wool soaked in the same solution. Warmth was applied to the body and he was made as comfortable as possible. In about half an hour the heart beats were distinctly stronger and he appeared to rally somewhat. One of the keepers sat up with him, and about every hour he was given a dose of stimulant with a little extract of beef. The following morning he showed a distinct gain in strength. In the evening the packing was removed from the wound and the part irrigated with an antiseptic solution. Stimulants and nourishment were now given at longer intervals, and on the third day the bowels acted freely, and he lapped a little water. On the fifth day he commenced to take a little food, and when assisted to rise was able to stand a few minutes without support, but it was not until the ninth day that he was able to rise without assistance; from this time recovery was rapid. I saw the owner a few days since and he informed me the dog had done his work this season as well as ever and appeared to be none the worse for his accident, although he still carries about an ounce and a quarter of shot in his body.

On Saturday, January 19th of this year, I was called to see a cow at a large dairy farm in this neighbourhood, which several months ago had met with an injury to one of her eyes. As a result of the injury a large fungoid growth had invaded the anterior part of the eye, which bled freely when touched, and gave her a very unsightly appearance. As the cow was a heavy milker and in calf the owner was anxious to keep her, and I therefore advised removal of the eye, to which he readily consented. On the following Monday the cow was thrown, the parts thoroughly washed with an antiseptic and 15 c.c. of the following solution:

B. Eucaine Hydrochlor	6 grs.
Sodium Chloride	12 grs.
Boiling distilled water	3½ oz.
Adrenalin Chloride	30 minims.

was injected deeply into the eye at three different points. In about two minutes the operation was commenced, anæsthesia of the parts was complete, and the hæmorrhage was trifling.

After the eye was removed the orbit was wiped out with dry cotton wool, and a piece of wool soaked in the solution was placed in the cavity and the lids brought together with four interrupted sutures. On the third day I saw her again and the attendant informed me she had apparently suffered no shock, her appetite had not been in the least impaired, neither was there any falling off in the milk yield. The sutures were now removed and the part, which presented a healthy appearance, was dressed with chinosol and boric acid powder. Two days later the parts had almost healed and the cow was much improved in condition.

I have also found adrenalin of value in conjunctivitis, keratitis, and other diseases of the eye, and in those conditions where there is much discharge from the eye of the dog after distemper, a drop of a 1-1000 solution alone or combined with boric acid applied twice a day quickly gives relief. In inflammation of the inner eye it gives good results combined with atropine.

My experience of this agent leads to the conclusion that combined with cocaine in cases of obscure lameness it is a valuable diagnostic, and by its early use in such cases I believe much valuable time may often be saved. I have seen no bad results follow the use of this injection, care has been taken to use a clean syringe, and the part to be injected has usually been washed with a 2 per cent. lysol or carbolic solution, though in some cases the latter precaution has been neglected. As a local anæsthetic combined with eucaine I consider it fulfils all the conditions claimed for it, and in all minor operations on the horse, ox, or dog it may be used with perfect safety in all ordinary doses.

The solutions mentioned in this paper have the disadvantage of not keeping well, and they must therefore be freshly prepared. It will be found more convenient to employ the preparations made by Parke, Davis & Co. "Endrinine" contains one per cent. of Eucaine, and Codrenine two per cent. of cocaine combined with adrenalin. The former has been successfully used by Hoare (*The Veterinary Record*, Dec. 9th, 1905), and is said by him to keep well.

Discussion.

Mr. Simpson said his experience of adrenalin was very limited, and he had thought Mr. Gooch would have solely claimed for it that it was a styptic. When first introduced to the medical and veterinary profession it was claimed to be an exceptional styptic, and although

he had found it to be an excellent agent in capillary bleeding, it was an absolute failure with more extensive hæmorrhage. Mr. Gooch had used it for internal bleeding and instanced the case of the dog which was shot. What the effect of subcutaneous or direct injection of this agent may be in cases of serious internal hæmorrhage he could not give any information of, but the essayist would be able to tell them whether his object was to arrest serious and not capillary hæmorrhage. Mr. Gooch had told them the history of the agent and that it was prepared from the suprarenal gland, but Mr. Gooch had claimed for it something more than he had ever understood it to be capable of, namely, a stimulating effect upon the heart. He observed that Mr. Gooch had in all cases mixed, if such an expression might be used, this agent with other agents to bring about this effect. This agent was introduced by Messrs. Parke, Davis, and he could not speak too highly of the way in which this firm prepared the high class agents which they sent out not only to the medical but the veterinary profession. He had not had any occasion to use adrenalin for its anæsthetic properties, though he had used other anæsthetic agents with the object of assisting him in his diagnosis. For lameness, again, he noticed that Mr. Gooch always used adrenalin associated with some other agent, and he would like to know whether Mr. Gooch attributed those good effects which had enabled him to give a correct diagnosis to adrenalin or to the other agents which he used in combination with it. Mr. Gooch had spoken of injections of this agent in connection with other agents in cases of knee lameness, but he did not think Mr. Gooch would claim for adrenalin or any of the agents used with it that it was instrumental in restoring an animal to soundness. He did not remember Mr. Gooch speaking of any other treatment after he had applied these combined agents for diagnosing the seat of disease. He did not think Mr. Gooch would go so far as to claim adrenalin was curative, certainly not of knee lameness, where in all probability the cause of such lameness was some bony deposit. He could well understand its application to the eye as it was rightly claimed to be a good capillary styptic, and it might be of great service in bringing about contraction of the minute vessels in the eye. He could conceive that no case would call more for the use of this agent than protrusion of the iris through the cornea, which would prevent further protrusion and pushing back as it were that portion of the eye into its proper position. He had a conversation the previous night with one of their members, Mr. Little, as to the alternative administration or application of such agents as adrenalin or eserine, or atropine with the object first of causing partial paralysis and then suddenly causing the eye to contract. He could understand this would be good treatment and that adrenalin might well be used in the place of eserine. Adrenalin could be used as a substitute for eserine by bringing about alternately contraction and the reverse. With regard to the preparations being made in one's own pharmacy those sent out by Messrs. Parke, Davis were so admirable that the ordinary practitioner should not trouble himself about making up large quantities of these agents. These were the days of tablets and tabloids and they ought to take advantage of them.

Mr. REEMAN wished to know what advantage there was in using adrenalin in diagnosis of lameness. Did it add to the effect of the cocaine. He had administered cocaine but he did not gather what the advantage of the combination was.

Mr. JOHN POLLOCK said he appreciated Mr. Gooch's paper very much, and he felt sure it would stimulate thought and enquiry upon the subject. Personally he had used this agent considerably for some time in minor operations and found it extremely useful when removing small tumours from the dog. He had operated on a dog's eye that morning using adrenalin and eudrenine in equal parts, one for a styptic and the other as an anæsthetic. He could strongly recommend it for eye operations. In removing tumours from the shoulder it was also effective; if injected all round the tumour the animal would stand perfectly quiet whilst being operated upon. In removing oat flight from a cow's eye it would be found serviceable, and his practice was simply to paint it on the eye with a camel hair brush. He had not used codrenine because it contained cocaine. One day when he was using cocaine he wondered why the animal was lying so quietly, when as a matter of fact it never came round. He had not had the success with cocaine (owing to its rapid absorption) that he had with adrenalin and eudrenine.

Mr. LITTLE said that in the few cases in which he had used it adrenalin had been so unsuccessful that he had given it up. What he had was the adrenal eucaine of Messrs. Hewlett and Co. In the first case cited by Mr. Gooch, that of a pony dragging its toe on the ground, which was injected over the shoulder, he failed to see what good it could have been either as a styptic or anæsthetic as the nerves in the region of the shoulder were so deep-seated he did not think the cocaine could have reached them. Cocaine and adrenalin were of no use unless injected over the nerve. In the case of the pony injected over the knee which then went sound, he had heard of horses going lame from a cause diagnosed as foot lameness, and in twenty or thirty minutes after an injection over the seat of the plantar nerve have gone sound and never gone lame again. Perhaps Mr. Gooch injected adrenalin and cocaine just over the plantar nerves at the back of the knee. He had spoken of injecting these agents in the hind leg over the nerves. He had not said what nerves, and perhaps he would tell them what region of the hind leg it was. Perhaps it was in the hip joint, for he said that if he had had sufficient supply he would have injected it over the hip, but he did not see how he could have injected it deeply enough over the nerves to have obtained any appreciable benefit. At all events that was his experience. Mr. Gooch also quoted the case of a dog shot near the rectum which was bleeding profusely and *in extremis*. He injected adrenalin into the wound and administered stimulants, and claimed that adrenalin tended to check the hæmorrhage. Like Mr. Simpson, he (Mr. Little) considered adrenalin checked hæmorrhage in the capillaries, but not in the large blood-vessels. If adrenalin was injected it contracted the capillaries, but put more force on to the large blood-vessels and they got more hæmorrhage. He thought that plugging the wound, giving stimulants, and the after treatment did more to save the dog's life than injecting adrenalin into the wound. The case of removing a cow's eye reminded him of a case he had a few months ago that he took to be epithelioma of the membrana nictitans. Mr. Gooch said he removed the eyeball completely, but as in this case the membrana nictitans only was affected, Mr. Little said he arranged to remove it, and used adrenalin and cocaine. He drew the membrana nictitans out, waited twenty minutes and then started operating. He continually swabbed the eye with adrenalin and cocaine and the cow certainly objected very much to the operation. In fact he was doing it standing and had a good deal of trouble, but he removed the membrana nictitans entirely. In the dog he looked upon it as a very minor operation, simply laying hold of it with the forceps and clipping it with scissors, and then let the dog go. In the case of his cow the epithelioma might have caused a bigger supply of blood, at all events the bleeding was profuse, although he had used adrenalin and cocaine. He had a case of a greyhound that was particularly well bred but had never been tried, which had distemper and ulcerated cornea as the result. It was an ulcer in both corneas and as the owner wished to keep him he took

him under treatment, kept him in the dark and applied nothing but an ointment composed of white vaseline and eserine prepared by Harrisons, of Birmingham. He was fed on nearly all cod liver oil with very little carbohydrates and he made a wonderful recovery. One eye with the smaller ulcer had hardly a speck the size of a pin's point on it. The larger one had a small white speck just at the tip of the cornea, and this he thought was due to his wishing to hasten proceedings by touching it with a little silver nitrate. After all this trouble when the dog was tried he did not turn out to be of much use, not on account of his eyesight but because he had not sufficient pace.

Something had been said about removing oat flights from cows' eyes, and he had to remove one from a colt. He had a nice eye, having had the flight in it for some time which had caused ulceration of the cornea in the first layer of the cells and the flight was still there. The colt was simply haltered and the twitch put on, but that was really necessary. A few drops of this ointment of atropine were dropped in, and in a few minutes he stood with his eye wide open and allowed the flight to be removed without any trouble whatever. He had found the ointment of vaseline and atropine admirable. For an eye where there was a discharge all round and the lids gummed together, an ointment of white vaseline kept them supple, they did not come together and there was no ulceration. The same thing applied to dogs in distemper, and in a bad case a little boric acid ointment tended to remedy it considerably.

Mr. MAYALL said that with regard to oat flights in the eyes of bullocks, when they had nothing else a little turpentine was useful. Very often it would enable them to remove it, especially if they kept back the membrana nictitans. He had had no experience in the use of adrenalin, but he had always understood it was a styptic. The Germans had used it pretty freely. They did not claim that it stopped arterial but capillary bleeding, and when performing an operation they always took care to choose a place where there were no arteries. Something had been said about removing tumours in the horse, and he had found ethylchloride was a very satisfactory local anæsthetic. It was a point of very great importance when they went a long distance to remove a tumour, to take something with them that they could depend upon. They did not like always to take a bag and hobbles, and as they had not much help sometimes they were grateful for any reliable local anæsthetic. He was deeply interested in what Mr. Gooch had said, and great credit was due to him considering the great lack of experimental research in England, where in their profession they always seemed to be afraid of doing what had not been done before. The latter, from a commercial point of view, might be wise, but he did not think it was always wise from a scientific point of view. The Germans were a long way ahead of us in matters of research and the reason was aid from the State. Here the State did nothing for them, and anything that was attempted had to be done by individual effort. It might be a long way off when science would rule the world, but it was certain that if the world was ruled by science things would be a great deal better. The man of science did not take his proper place in the councils of the nation, nor even in the profession to which he had devoted himself. The reason was because he was not helped financially as he ought to be. The subject was well worthy of consideration. Anything that had to do with therapeutics, the science of healing, anything that could aid them in their surgery, was well worthy the consideration of any scientific association.

Mr. GOOCH, in replying on the discussion, said Mr. Simpson had asked what his object was in using adrenalin in the case of the dog, whether for preventing or stopping the hæmorrhage. He had used it with the dea of preventing any further capillary hæmorrhage, and also as a heart stimulant. It appeared in that case to act almost immediately, the dog beginning to revive half-an-hour after the injection of adrenalin. It had not had any stimulants up to that time, and he injected the adrenalin immediately he arrived. While he was preparing a dressing for the wound, and the owner had gone into the house for some whisky (Laughter) for the dog (More laughter), the dog revived before it had had any stimulant at all. He attributed this good result to the action of adrenalin directly on the heart. In every case in which he had used, in hæmorrhage after castration, and so forth, it was not so much with the idea of arresting hæmorrhage as of stimulating the heart, his method being by hypodermic injection. He remembered a case where he had castrated a colt by the standing operation, and he wished he had not. He used the ecraseur at ten o'clock in the morning, and at four or five in the afternoon he got a message to go again. The colt had been bleeding profusely all that time and had got into an awfully weak state, almost a fainting condition. He gave it a big injection of adrenalin, and the colt revived almost immediately. It was administered subcutaneously. The hæmorrhage stopped shortly afterwards, and he plugged the scrotum with an adrenalin solution, but he attributed the good effects obtained more to the stimulating action on the heart, because the colt had lost such an enormous quantity of blood. He injected about 15 to 20 c.c. of the 1 in 10,000 solution. Mr. Simpson also asked why he combined adrenalin with cocaine or eucaine, and his reason was that the adrenalin acting on the capillary vessels allowed him to use a smaller dose of the anæsthetic and the effect of the anæsthetic was longer than if cocaine was used alone. If a large dose was used on a dog they were apt to get cocaine poisoning, which was by no means uncommon, and he had himself nearly poisoned a big St. Bernard a little time ago. As to making up large quantities of the solution at the time he was using it, he did not know it was put up in a convenient form. Consequently he made up the solution himself. He would certainly not prepare any more when he had exhausted his present stock, and should obtain and use the concentrated solution instead, which was much more convenient and, he believed, kept well. If the solution was kept it went pinky. It was best used immediately, and he would not like to use any a day after it had been made up. Mr. Reeman had asked what was the advantage of combining adrenalin and cocaine for diagnosis of lameness, but he mentioned it as he wanted to ascertain if any other member had used them and met with the same results. He had since used it in similar cases and found the results permanent after three or four days. He had injected it experimentally with a pony between 20 and 30 years old that was going to be shot. He had a diseased fetlock joint, and Mr. Gooch said he made an injection over the plantar nerve on each side of the leg. Ten minutes or a quarter of an hour afterwards the pony walked sound, and he remained sound for three days, but on the fourth day he was lame again. The question arose whether these injections had not a curative effect in some diseases. He could understand it might have. By restricting the action of the capillaries the supply of blood to the part is lessened. In the case of a bony enlargement, by an injection over the part, and the capillary supply being checked, it might lessen the inflammation and produce good results. He had no knowledge of the drug mentioned by Mr. Little and had never used it, so that he was not in a position to say anything about it. Adrenalin and eucaine he had always found to act satisfactorily in all cases of removal of tumours. There was less capillary hæmorrhage, and this enabled them to see the deeper vessels and ligature them without any trouble. With regard to the eye, he had three cases of oat flight in bullocks on a recent Sunday morning. The owner simply telegraphed to him to "come and see bullocks," it was eight miles off,

and he found they had flight in their eyes. It was a very troublesome task to get them out, as it was cold, raining, and very unpleasant, and he found it an awful trouble. He very much wished he had some adrenalin, cocaine, or something of the sort with him. In using it as a diagnostic in conjunction with cocaine, he thought there could be no doubt it acted by contracting the capillary vessels, allowing the cocaine to act for a longer time than it otherwise would do. It was not absorbed into the circulation so that there was less danger of toxic effects following.

Mr. REEMAN proposing a vote or thanks to Mr. Gooch for his paper, said it would stimulate them to use this drug more, and from what he had told them they might certainly expect to experience beneficial results.

Mr. MAYALL seconded, and the vote was carried by acclamation.

Mr. GOOCH, in his acknowledgment, said he would not like to say that he claimed for adrenalin ability to stop hæmorrhage from the large vessels, but simply that it is a good styptic for capillary hæmorrhage. It had never been claimed for it that it would stop hæmorrhage from the large vessels. When applied to the eye he used a 1 in 10,000 solution and the effects were almost instantaneous. They saw the vessels all gorged with blood, the membrane swollen and the eye looking in a very bloodshot condition. One minute afterwards the vessels will be contracted, the blood driven from the capillaries, the eye blanched and in almost its natural condition. This would last four hours, so that if applied twice a day it got the eye free from congestion of the blood-vessels, healing went on nicely and even in a bad case they would see in three or four days a very marked improvement. It was also a great benefit in conjunctivitis, not only in the healing of the eye, but the discharge was lessened and the healing of the parts took place very quickly.

The PRESIDENT said that in laying down his office he had to thank very warmly all the officers of the Society for the kind help and support they had given him throughout the year.

Mr. MAYALL proposed a vote of thanks to Mr. Buckingham for the manner in which he had carried out his onerous duties as President.

Mr. SIMPSON, who seconded, said they would not soon forget the manner in which the President and his wife welcomed and entertained them at Yarmouth. He had been in the chair at every meeting and no member of the Society had anything but praise for the manner in which he had conducted their proceedings, for his patience with every member, and his impartiality.

The PRESIDENT replied briefly, and the meeting ended.

HARRY P. STANDLEY, *Hon. Sec.*

A Case of Goitre of a Dog.

Professor Wagner von Taueregg, who has made the study of endemic goitre his specialty, has turned his attention to the incidence of goitre and idiocy amongst the lower animals. At a recent meeting of the Vienna Medical Society, he showed a dog which had been suffering from hypertrophy of the skin tissue and whose mental activity was very deficient as compared with that of other dogs of similar breed. It could hardly follow a man in the street and it never recognised its master. Its food had to be given to it, and its metabolism was very

DISEASES OF ANIMALS ACTS 1894 TO 1903. SUMMARY OF RETURNS.

Period.		Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Rabies. Cases Confirmed.		Sheep Scab.	Swine Fever	
		Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Dogs.	Other	Out-breaks	Out-breaks.	Slaugh-tered *
GT. BRITAIN. Week ended Feb. 23		16	35			19	58			24	39	185
Corresponding week in	1906 ..	29	30			15	33			18	19	47
	1905 ..	19	21			19	30			33	13	46
	1904 ..	18	32			32	58			75	21	61
Total for 8 weeks, 1906		148	202			148	357			265	298	1301
Corresponding period in	1906 ..	156	202			183	329			187	147	647
	1905 ..	165	257			182	335			407	87	341
	1904 ..	164	226			214	447			754	210	1222

Board of Agriculture and Fisheries, Feb. 26. 1907.

IRELAND. Week ended Feb. 16		..	..	..	..	..	..	..	..	10	1	123
Corresponding Week in	1906 ..	1	1	..	..	..	..	..	..	10	2	132
	1905 ..	..	..	..	..	3	7	..	..	16	1	15
	1904 ..	1	1	..	..	..	..	..	..	20	5	46
Total for 7 weeks, 1907		..	..	..	..	..	..	..	..	98	27	474
Corresponding period in	1906 ..	2	2	..	..	1	4	..	..	98	4	152
	1905 ..	..	..	..	..	6	12	..	..	135	18	186
	1904 ..	1	1	..	..	1	1	..	..	207	31	394

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Feb. 21, 1907.

NOTE.—The figures for the Current Year are approximate only.

* As Diseased or Exposed to Infection

slow. It passed urine not more than once in 24 hours, whilst other dogs are noted for the ever-present desire to micturate at every street corner. The body of the cretin dog was short and plump and its nose and legs were thick and short, whilst a brother and the mother of the dog were slender, active, and quick-witted creatures. Another very important feature was that the dog never curled up or wagged its tail, but kept it between its legs and was in the habit of sitting on it, so that it was much rubbed and had hardly any hair on its dorsal aspect. Professor von Taueregg resolved to treat the animal with thyroid tablets and within eight months the results were so remarkable that he showed it again to the society. The dog could hardly be recognised. It now took an interest in its surroundings, it had increased in size, and its body was more proportionate than formerly; its appetite, thirst, and metabolism were as normal as those of any other dog. The most interesting change, however, appeared in the tail, which was now carried erect and was bushy, with thick, silky hair. A portion of the thyroid gland, which had been excised and examined, showed little difference from a normal thyroid gland, except that all the alveoli were full of colloid substance as in goitre. The effect of treatment with thyroid tablets proved that the importance of the gland depended chiefly on its internal secretion, and this factor could not be gauged by the anatomical or microscopical appearance of diseased or normal glands.—*The Lancet.*

Municipal Motor Wagons.

The household and trade refuse of Cardiff is deposited on "tips" on the outskirts of the town. As the inhabited bounds of the borough are every year getting farther and farther from the centre the difficulty of obtaining suitable land for depositing the refuse increases. The greater distance for cartage adds, moreover, very considerably to the cost of dealing with the refuse. When the city engineer suggested two years ago that motor wagons should be used for the purpose of carting away this refuse it was confidently expected that there would be a considerable saving compared with haulage by horses. It appears, however, that these anticipations have not been fulfilled, and it has been decided to return to horse haulage, except in the case of one depôt situated at some distance from the point of collection and for which two motor wagons will be retained.—*The Lancet.*

HANDBUCH DER VERGLEICHENDENMIKROSKOPISCHEN ANATOMIE DER HAUSTHIERE. (Manual of the Comparative Microscopic Anatomy of the Domesticated Animals).—By Prof. ELLENBERGER, of Dresden. Pub: P. Parey, Berlin.

A real histology of the organs of the domesticated animals with plates drawn from the actual organs. The twelve chapters are each by a specialist on the subject dealt with and are: 1. The organs of locomotion, muscle and connective tissues; 2. The common integument and epithelial tissue; 3. Mammary glands; 4. Subrenal glands; 5. Spleen; 6. Thyroid and parathyroid; 7. Thymus; 8. Nerve tissue and peripheral nervous system; 9. Organs of taste and smell; 10. Organs of hearing; 11. Organs of sight; 12. The animal cell.

The work is an ornament to veterinary literature and one which is equally useful to science generally, and may be heartily recommended to readers ef German.

F. E. P.

Personal.

We are pleased to hear from Major Pease that the fractures incurred in his recent accident have united and that he is making satisfactory progress towards recovery, and hopes to be about again soon.

BEVAN.—On 28th January, at Salisbury, Rhodesia, the wife of Llewellyn E. W. Bevan, M.R.C.V.S., of a son.

SPICER—On 20th Feb. at Crabwood, Oxted, the wife of Arnold Spicer, F.R.C.V.S., of a daughter.

OBITUARY.

LUCIEN F. L. SAVOURNIN, M.R.C.V.S., Long Lane, West Smithfied, E.C.

Graduated, Lond: May, 1890.

Mr. Savournin died in hospital from peritonitis on Monday morning, Feb. 25, aged 39. Funeral on Friday at Highgate Cemetery.

At the Guildhall, on Monday, Alderman Sir George Truscott referred in sympathetic terms to the death of Mr. Lucien Savournin, M.R.C.V.S, who for the past sixteen years was a familiar figure in that court as veterinary expert to the City police. Hundreds of the broken-down horses seen day after day in the Guildhall yard have passed through the hands of the late Mr. Savournin. These animals had been stopped by the police in the City, and the drivers charged with cruelty. Much depended on Mr. Savournin's evidence, which often amounted to a sentence of death on the poor brute in the yard, as the owners frequently consented to its destruction in preference to being fined heavily.

The deceased gentleman last appeared in the witness-box to give evidence in a cruelty case on Friday. Later in the same day he was attending a horse professionally when the animal suddenly kicked him in the abdomen, inflicting injuries which proved fatal.

Sir George Truscott said the deceased gentleman was highly respected by every member of the Court of Aldermen for the conscientious discharge of his duties, and he did not feel that he could commence the business of the court that morning without expressing sympathy with Mr. Savournin's family in the great loss they had sustained.

Mr. Savournin was a pupil, and ultimately successor, of the late Mr. Sangster.—*Morning Advertiser.*

DISTEMPER.

Sir,

In reply to "Canis" it is a generally accepted fact that there are one or two inexact sciences and unfortunately medicine is one of them. There is no such thing as an inexact fact, hence when he says "science is a knowledge of *exact* facts," I presume he means science is a knowledge of facts, but sometimes we call it science, when we have not knowledge of *all* the facts. What is called a fact, is not a fact at all if it is inexact, and as Burns has said "facts are chiels that winna ding and darna be disputed."

There is nothing that seems to me more inexact in the whole range of veterinary medicine than this distemper matter. The word is vague and unscientific, and has nothing to recommend it. Any diagnosis of distemper, unless the bacillus has been isolated and cultivated outside the animal body is purely clinical in all cases, and therefore purely conjectural and a matter of opinion, but "Canis" objects to opinions, although he doesn't advance much else himself.

"Canis" says "it is very easy to assert, but much more difficult to demonstrate." I would commend this platitude to him for further consideration.—Yours truly,

G. MAYALL.